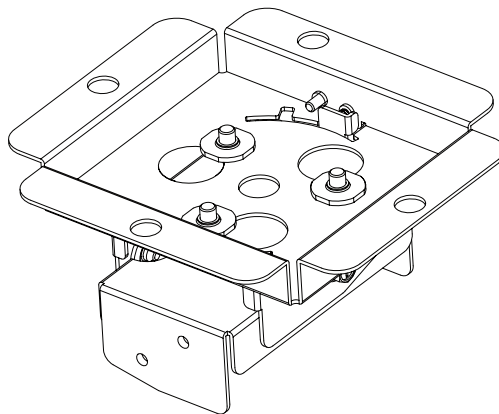


## Installation Instructions Ceiling Mount Bracket (for Low Ceilings)

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Model No. **ET-PKL100S**



Thank you for purchasing this Panasonic Product.

■ To customers

The “Installation Instructions” is intended for use by installation personnel. Be sure to employ certified personnel to perform the installation. After installation, have the installation personnel return these “Installation Instructions” to you, and save it for future use. When moving or removing the projector, give this “Installation Instructions” to the installation personnel and have them perform the procedure.

■ To installation personnel

Carefully read the “Installation Instructions” and install this product correctly and safely.

Be sure to read through the section entitled “Read this first!” (page 3) before proceeding with the installation. After installation, return these “Installation Instructions” to the customer.



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## WARNING:

**Installation work should only be carried out by the certified personnel.**

- If this product is not installed correctly, serious accidents may result.
- Follow the instructions specified in “Installation” and “Installation of ceiling mount bracket drop-prevention kit” of this manual, and perform secure installation.

**Install the ceiling mount bracket in accordance with the structure and materials of the installation location.**

- If a mistake is made in the installation procedure, the ceiling mount bracket may fall down and an injury may result.

**Mounting and installation must be carried out by two or more persons.**

- When installing the projector in an overhead location, for example, in a high ceiling, at least two persons will be required to handle the installation.

**Make sure that your footing is safe and secure during installation.**

- If your footing is not secure, you may fall down or drop the unit, and an injury may result.

**Do not loosen or remove the unit screws and bolts unnecessarily.**

- The projector may fall down and an injury may result.

**Do not install in a location that is not strong enough.**

- If the installation location is not strong enough, the unit may fall down and damage to the projector or an injury may result.

**Do not install the ceiling mount bracket in humid or dusty locations or in locations where the ceiling mount bracket may come into contact with oily smoke or steam.**

- Using the projector under such conditions may result in fire or electric shock. Also, the oil will cause the plastic to deteriorate and the projector may fall down when installed on a ceiling.

**Do not allow children to reach the supplied screws and metal fittings.**

- The supplied screws and metal fittings can cause personal injury if swallowed.
- If swallowed, seek medical advice immediately.

**Do not disassemble or modify the ceiling mount bracket.**

- The projector may be damaged or fall, causing injury.

## CAUTION:

**Only install a designated projector.**

**Only install using a designated method.**

- The projector may fall down and be damaged, and an injury may result.

**Do not install the unit in a location that may impede projector ventilation.**

- A fire may result.

**Do not hang from or hang objects on the projector or ceiling mount bracket.**

- The projector may fall and cause injury.

**When installing, always use the supplied components.**

- The unit may be damaged, or the projector may fall down and an injury may result.

**Install the mounting screws and power cable in such a way that they will not make contact with metal objects inside the ceiling.**

- Electric shocks may result from contact with any metal objects inside the ceiling.

■ **Panasonic takes no responsibility for any accident or damage caused by the installation of the ceiling mount bracket using methods that are not described or methods that do not use the parts specified in these Installation Instructions.**

■ **If products are no longer being used, they should be dismantled and removed by certified personnel as soon as possible.**

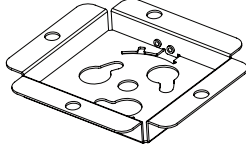
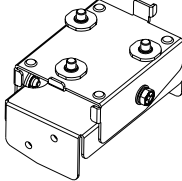
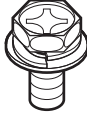
# Product description

This is a ceiling mount bracket for installing projectors.

## ■ Applicable ceiling mount brackets

ET-PKL420B / ET-PKL430B

## ■ Structural components

Parts name	Form (number of parts)	Applications
Attachment plate	 × 1	The attachment plate is attached to the ceiling via four ceiling mount bolts. Installation methods are different for concrete and wooden ceilings. It also allows horizontal swing angle adjustment.
Adjustable bracket unit	 × 1	This is used to connect the attachment plate with the projector mount bracket. It has a function which allows adjustment of the forward and back tilt.
Bolts	Hex head bolt, captive washer (M6 × 12)  × 4	These are used to secure the adjustable bracket unit to the projector mount bracket.

• The M6 indications in the installation instructions refer to captive washer hex head bolts.

## ■ The user must also obtain the following parts. (sold separately)

Installation work		Required parts	page
Installing the attachment plate to the ceiling	Installing to a wooden structure	Ceiling mount bolt (×4), Hex nut (×16), Flat washer (×16) Spring washer (×8)	6
	Installing to a concrete structure	Ceiling mount bolt (× 4), Hex nut (× 12), Flat washer (× 12), Spring washer (× 8), Anchoring nut or curled plug (× 4)	6
Installation of ceiling mount bracket drop-prevention kit	Installing to a wooden structure	Ceiling mount bolt (× 1), Hex nut (× 2), Flat washer (× 1), Spring washer (× 1)	10
	Installing to a concrete structure	Anchoring nut or curled plug (x1), Spring washer (x1), Hex head bolt (x1)	10

• Be sure to use M8 or  $\frac{5}{16}$ " suspension bolts, nuts, flat washers, spring washers and anchor nuts.

- Store small parts in an appropriate manner, and keep them away from young children.
- Screw tightening torques: M4:  $1.25 \pm 0.2 \text{ N}\cdot\text{m}$ , M6:  $4 \pm 0.5 \text{ N}\cdot\text{m}$ , M8 or  $\frac{5}{16}$ ":  $10 \pm 1 \text{ N}\cdot\text{m}$ .
- Use a torque screwdriver or torque wrench when tightening the bolts and nuts. Do not use electric screwdrivers or impact screwdrivers.

### Attention

- Dispose of the packaging materials properly after taking the product out of it.

# Installation

After checking the height, width and structure of the installation location, determine the appropriate positions for setting up the screen and installing the projector.

## Setting up the screen

Set up the screen according to the specified method in a position which takes into account the projection distance and angle and the type of screen being used.

## Screws tightening torques

- M4..... 1.25 ± 0.2 N • m
- M6..... 4 ± 0.5 N • m
- M8 or  $\frac{5}{16}$ "..... 10 ± 1 N • m

● When tightening the screws, use a torque screwdriver or a hex torque wrench to tighten the screws to the specified tightening torques. Do not use electric screwdrivers or impact screwdrivers.

## Mounting the attachment plate to the ceiling

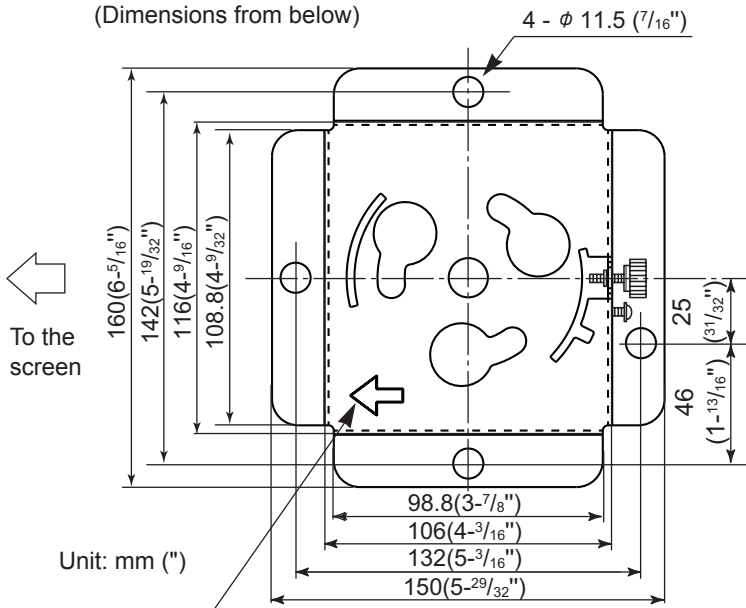
After checking the height, width, and structure of the installation location, determine the appropriate positions for setting up the screen and installing the projector. Determine the location of the attachment plate in the ceiling to align the lens with the center of the screen.

### ■ Attachment plate mounting hole sizes and preparation

Make mounting holes while referring to the following diagrams.

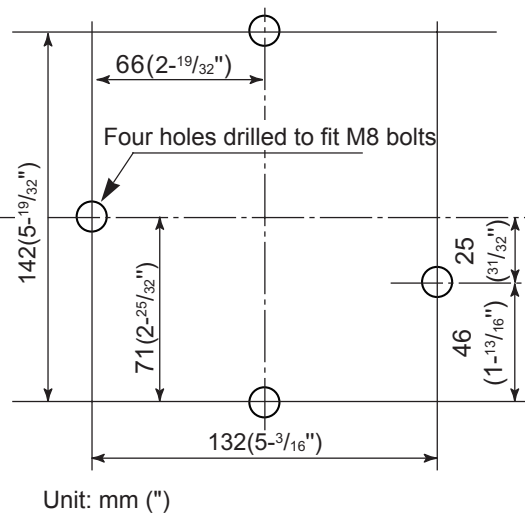
<Attachment plate diagram>

(Dimensions from below)



Install the attachment plate so that the arrow points toward the screen.

<Bolt mounting hole size>



Unit: mm (")

### Attention

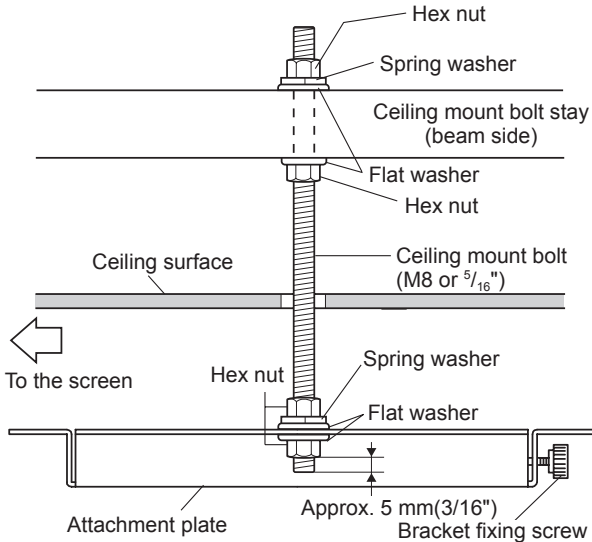
- If installing to a concrete structure, the sizes of the bolt mounting holes should match the sizes of the anchoring nuts or curled plugs used.
- Please purchase M8 or  $\frac{5}{16}$ " bolt for the commercially available ceiling mount bolt, hex nut, flat washer, spring washer, anchoring nut or curled plug.

# Installation (continued)

## ■ Installing the attachment plate

Depending on whether it is installed on a concrete or wooden ceiling structure, there are two different installation methods. Carry out by the appropriate installation method which is suited to each ceiling.

### ● Installing to a wooden structure



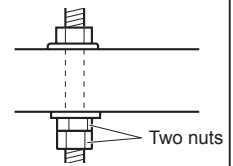
- 1 Make holes in the ceiling surface for inserting the ceiling mount bolts.
  - The sizes of the holes in the ceiling should match the sizes of the mounting holes in the attachment plate. (Refer to page 5 for attachment positions.)
- 2 Secure the ceiling mount bolts.
  - Check that the ceiling mount bolt locations are strong enough to bear the full weight of the projector. If they are not strong enough, use reinforcements while giving full consideration to the required safety coefficient.
- 3 Secure the attachment plate to the ceiling mount bolts.
  - In the side of the attachment plate, the end of the ceiling mount bolts should protrude from the hex nuts by about 5 mm. Be sure to use the commercially available flat washers and spring washers when installing the attachment plate.

### Attention

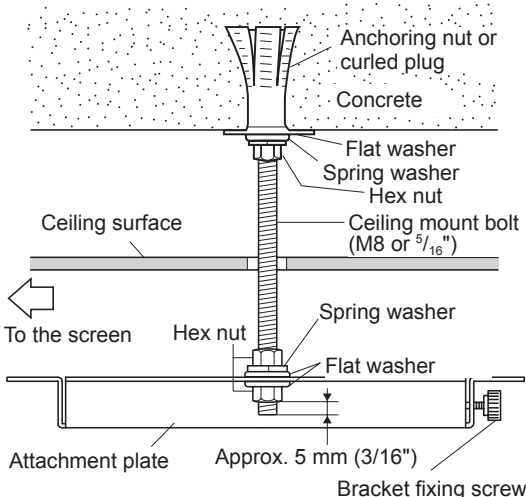
- Make sure the arrow displayed in the attachment plate points toward the screen while attaching.

### Attention

- Use only size M8 or  $\frac{5}{16}$ " ceiling mount bolts, hex nuts, flat washers and spring washers.
- All bolts and nuts should be securely tightened, and sufficient measures such as using two nuts or painting should be employed as necessary to prevent any loosening.



### ● Installing to a concrete structure



- 1 Attach the anchoring nuts or curled plugs to a concrete ceiling and securely fix the four ceiling mount bolts. (Refer to page 5 for attachment positions.)
  - When installing the anchoring nuts or curled plugs, adhere strictly to the installation instructions supplied by the manufacturer of the nuts, so they will not loosen in the concrete structure or be dislodged from the intended positions.
  - Check to make sure that the concrete ceiling structure can easily bear the whole weight of the projector and the ceiling mount bracket. If it is found to be fragile or degraded, use steel or wooden reinforcements.
- 2 Secure the attachment plate to the ceiling mount bolts.
  - In the side of the attachment plate, the ends of the ceiling mount bolts should protrude from the hex nuts by about 5 mm. Be sure to use the commercially available flat washers and spring washers when installing the attachment plate.

### Attention

- Make sure the arrow displayed in the attachment plate points toward the screen while attachment.

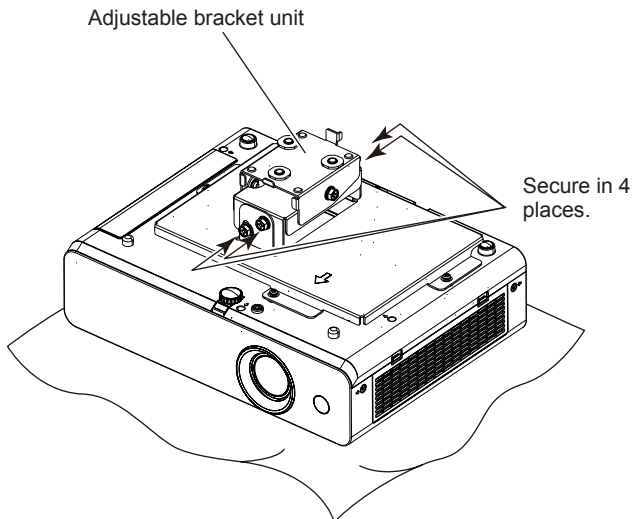
## Installation (continued)

### Installing the brackets to the projector

Install the projector mount bracket to the projector (sold separately) first, then install the adjustable bracket unit.

#### Note

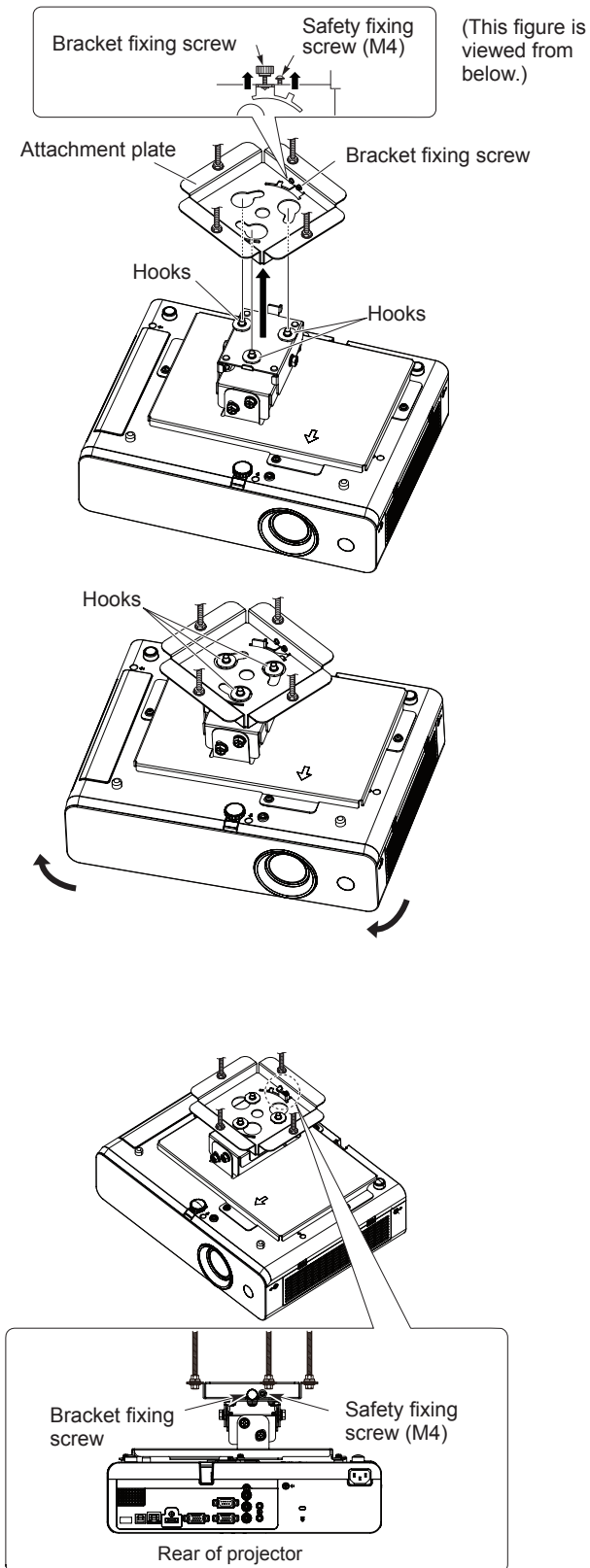
- For installing the projector mount bracket to the projector (sold separately), refer to the Installation Instructions of the Projector Mount Bracket.



As shown in the figure on the left, install the adjustable bracket unit to the projector mount bracket with the 4 supplied captive washer hex head bolts (M6 × 12).

- \* The illustrations of projector and the projector mount bracket in this instruction are for informational purposes only and do not represent a specific model.

## Suspending the projector



- 1 Loosen the bracket fixing screw of the attachment plate and the safety fixing screw.
- 2 Insert the hooks of the adjustable bracket unit into the three holes in the attachment plate, then rotate the projector in the direction of the arrow.

### Attention

- Loosen the bracket fixing screw and the safety fixing screw as shown in the figure on the left before inserting the hooks of the adjustable bracket unit.
- Hold the projector firmly until inserting the hooks of adjustable bracket unit into the holes in the attachment plate and the rotating the projector are finished.



## WARNING



■ Mounting and installation must be carried out by two or more persons.

- 3 Temporarily tighten the bracket fixing screw.

### Attention

- After the installation angle adjustment on page 9, tighten the bracket fixing screw securely with fingers.
- 4 Use a torque screwdriver to tighten the safety fixing screw.

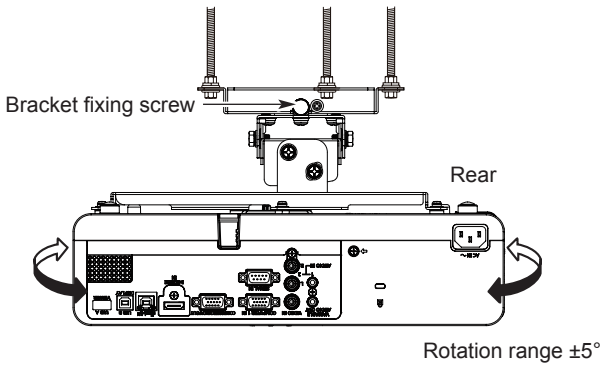


# Adjusting the installation angle

- It is possible to adjust the horizontal swing and also the horizontal and vertical tilt of the ceiling mount bracket.
- For the projector with the lens shift function, check that the projector lens is in the standard position\*<sup>1</sup>, and adjust the positioning of the projected image and the screen.
- While referring to the operating instructions for the projector, project a picture onto the screen and then adjust the picture size and focus. After making these adjustments, adjust the ceiling mount bracket angle.

\*<sup>1</sup> For the projector with the lens shift function, standard position is a state when the lens position is in the center (lens center).

## ■ If the picture is too far to the left or right of the screen



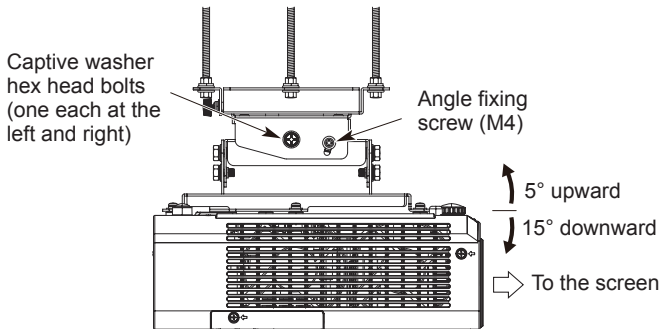
1 Loosen the bracket fixing screw in the attachment plate, turn the projector right and left to perpendicularly align the center of the screen with the center of the image.

2 Once the picture is positioned correctly, securely tighten the bracket fixing screw with the fingers.

### Attention

- Do not loosen the bracket fixing screw too much, otherwise the projector may fall down.
- For the projector with the lens shift function, it can also be adjusted by using the lens shift function.

## ■ If the picture is too far to the top or bottom of the screen



1 Loosen the captive washer hex head bolts at the sides of the projector mount bracket (one at each side) and also loosen the angle fixing screw (1), and then move the rear of the projector up or down to adjust the position of the picture with respect to the screen.

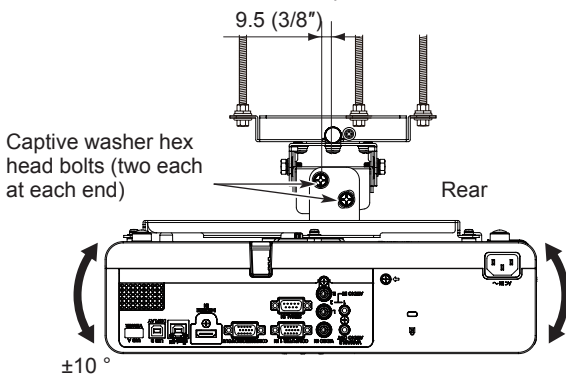
2 Once the picture is positioned correctly, securely tighten the captive washer hex head bolts (one at each side) and the angle fixing screw (1).

### Attention

- Do not loosen the captive washer hex head bolts and the angle fixing screw too much, otherwise the projector may fall down.

## ■ If the picture is tilted to the left or right

From center of attachment plate to center of rotation



1 Loosen the captive washer hex head bolts at the front and rear of the projector mount bracket (two at each end), and adjust the left and right tilt of the projector, to correct the projected image.

2 Once the picture is positioned correctly, securely tighten the captive washer hex head bolts (two at each end).

### Attention

- Do not loosen the captive washer hex head bolts too much, otherwise the projector may fall down.

### Note

- If there is still vertical keystone distortion after adjusting the angle of the ceiling mount bracket and Keystone in the Position on screen menu has not been adjusted, the screen and projector are not correctly aligned. Check the standard installation dimensions while referring to "Standard installation dimensions" on the installation instruction of the projector mount bracket. Or adjust keystone on the projector.

### Attention

- After checking the position adjustments, check that the screws have been tightened to the torques specified on page 5.

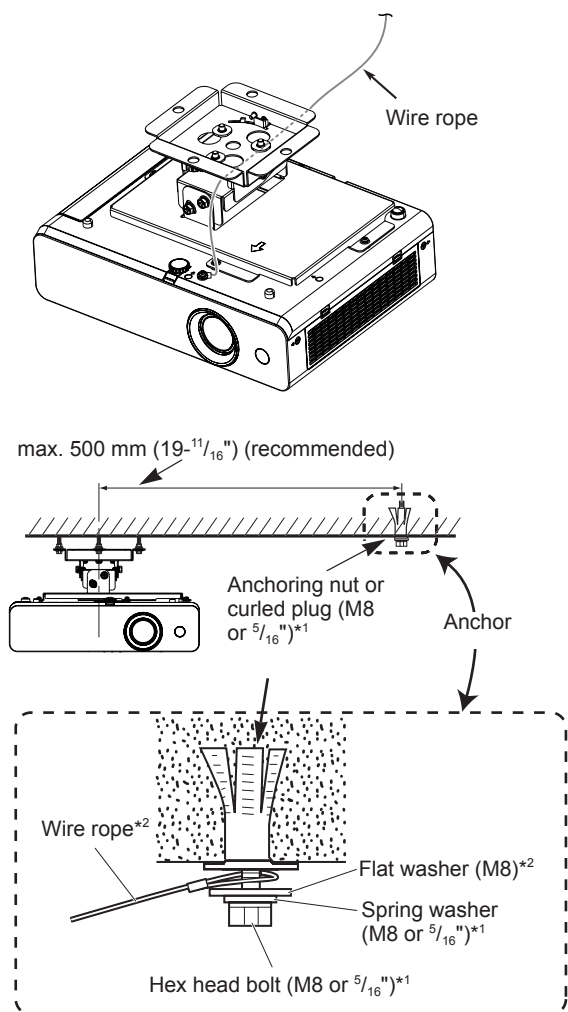
# Installation of ceiling mount bracket drop-prevention kit

Use the drop-prevention kit supplied with the projector mount bracket (sold separately) to prevent the projector from falling.

## Note

- For attaching the wire rope to the projector, refer to the installation instructions for the separately sold projector mount bracket.

The procedure in the following shows a case of installation on the concrete ceiling.



\*1: Commercially available product

\*2: Supplied with the optional projector mount bracket

- 1 As shown in the figure on the left, pass the wire rope through the hole between the attachment plate and the adjustable bracket unit.
- 2 Mount the commercially available anchoring nut or curled plug (M8 or  $\frac{5}{16}$ " ) onto a sturdy concrete ceiling (at the position shown in the figure on the left).
  - If it is to be attached to a wooden surface, mount the commercially available ceiling mount bolts onto the holes drilled in the wooden ceiling beam, in the same manner as the procedure of mounting the attachment plate described in the page 6.

## Attention

- When mounting the commercially available anchoring nut or curled plug (M8 or  $\frac{5}{16}$ " ), be careful that there is no slack between the projector and the ceiling.
- 3 Tighten the commercially available hex head bolt (M8 or  $\frac{5}{16}$ " ) to the anchor, passing it through the commercially available spring washer (M8 or  $\frac{5}{16}$ " ), the supplied flat washer (M8) on the projector mount bracket, and the loop at the end of the wire rope.
    - If it is to be attached to a wooden surface, pass the loop at the end of the wire rope, the flat washer (M8) supplied with the projector mount bracket, and a commercially available spring washer (M8 or  $\frac{5}{16}$ " ) through the attached ceiling mount bolt and fix with a commercially available hex nut (M8 or  $\frac{5}{16}$ " ).

## Attention

- Purchase the commercially available anchoring nut or curled plug, hex head bolt, and spring washer.
- Tense the wire rope without making influence to the image position.

# Specifications

Range of adjustment	Vertical tilt correction angle	5° above horizontal, 15° below horizontal
	Horizontal tilt correction angle	± 10 °
	Horizontal swing correction angle	± 5 °
External dimensions		<b>Width: 160 mm (6<sup>-5/16</sup>" )</b> <b>Height: 76 mm (2<sup>-31/32</sup>" )</b> <b>Depth: 150 mm (5<sup>-29/32</sup>" )</b>
Weight		Approx. 0.7 kg (1.54 lbs)

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# Panasonic Corporation

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SS0514JY1037 -ST  
Printed in Japan